

PATENT COOPERATION TREATY



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PCT
INTERNATIONAL PRELIMINARY EXAMINATION REPORT

104585007

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference B 14079.3 JL	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR2003/000954	International filing date (day/month/year) 26 mars 2003 (26.03.2003)	Priority date (day/month/year) 28 mars 2002 (28.03.2002)
International Patent Classification (IPC) or national classification and IPC H01L 21/58, 21/68, 21/762, 21/20		
Applicant COMMISSARIAT A L'ENERGIE ATOMIQUE		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 14 octobre 2003 (14.10.2003)	Date of completion of this report 29 June 2004 (29.06.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/000954

I. Basis of the report

1. With regard to the elements of the international application:*

- ☐ the international application as originally filed
- ☒ the description:
 pages 1-18, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the claims:
 pages 1-13, as originally filed
 pages _____, as amended (together with any statement under Article 19
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☒ the drawings:
 pages 1/4-4/4, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____
- ☐ the sequence listing part of the description:
 pages _____, as originally filed
 pages _____, filed with the demand
 pages _____, filed with the letter of _____

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language _____ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/fig _____

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR 03/00954

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2, 7	YES
	Claims	1, 3-6, 8-13	NO
Inventive step (IS)	Claims		YES
	Claims	1-13	NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims		NO

2. Citations and explanations

1. Reference is made to the following documents:

- D1: FR-A-2 781 925 (COMMISSARIAT ENERGIE ATOMIQUE) 4 February 2000
- D2: US-A-2001/0051415 (LARSON ET AL) 13 December 2001
- D3: FR-A-2 809 867 (COMMISSARIAT ENERGIE ATOMIQUE) 7 December 2001

2. For the following reasons, claim 1 does not define subject matter that would meet the PCT novelty and inventive step requirements (PCT Article 33(2) and (3)):

2.1 D1 describes (the references in brackets are to that document):

- a) a support handle with a face used as an adherence surface (D1: figure 3, reference sign 10);
- b) a method of preparing a front face of a plate, said method comprising the high-frequency etching of an SiO₂ oxide plate (a method of rendering the front face of a plate non-planar, i.e. performing

incomplete planarization) to obtain a level of adherence energy between a first value, corresponding to the minimum level of adherence energy compatible with a subsequent thinning stage, and a second value, corresponding to the maximum level of adherence energy compatible with the subsequent separation stage (D1: figure 2, reference signs 2, 6 and 8; page 8, line 33, to page 9, line 17; page 10, lines 22 to 25; page 11, lines 12 to 27);

c) joining of the front face of the plate to the adherence surface of the support handle by molecular adhesion (D1: figure 3, reference signs 2, 6, 8 and 10; page 9, lines 18 to 26);

d) thinning of the plate from its rear face until the thin layer is obtained (D1: figure 4; page 9, line 27, to page 10, line 2); and

e) transfer of the surface elements of the thin layer to a useful support, involving separation from the support handle (D1: figure 8).

2.2 Therefore D1 implicitly describes a method of "incomplete planarization" for controlling adherence energy by altering the roughness of a surface (D1: page 9, lines 9 to 17; page 11, lines 16 to 21).

2.3 Therefore the subject matter of claim 1 is not novel (PCT Article 33(2)).

2.4 The problem addressed by the present invention can be considered that of efficaciously preparing a face of a plate in order to obtain a desired level of adherence energy.

2.5 For the following reasons, the solution to this problem proposed in claim 1 of the present application is likewise not considered to involve an inventive step (PCT Article 33(3)):

2.5.1 It is well known, from D2, for example, to create voids in order to obtain an incompletely planarized face, and thus the desired level of adherence energy (see D2: paragraph [0035]). It is also well known, from D3, for example, to clean, i.e. planarize, a face of a plate in order to control adherence forces (see D3: page 20, lines 17 to 20).

2.5.2 The methods mentioned in D2 and D3 all describe "incomplete planarization". Each method is thus only one of the many possibilities which a person skilled in the art might choose, according to the circumstances, for the purposes of incomplete planarization as per claim 1, and solve the problem of interest, without thereby being inventive.

3. For the following reasons, dependent claims 2 to 13 do not contain any features which, combined with the features of any of the claims to which claims 2 to 13 refer, might define subject matter which would meet the PCT novelty and/or inventive step requirements (PCT Article 33(2) and (3)):

3.1 The features in claims 3, 4, 5, 6, 8, 9, 10, 11, 12 and 13 are known from D1 (see D1: figure 8; page 8, line 33, to page 9, line 17; page 10, lines 22 to 25; page 11, lines 12 to 27).

Therefore the subject matter of claims 3 to 6 and 8 to 13 is neither novel nor inventive (PCT Article 33(2) and (3)).

- 3.2 D1 describes a cutting stage from which the subject matter of claim 7 differs in that the cutting stage is carried out by combining a stage in which the thin layer is deeply etched with a sawing stage.

This solution is not considered inventive (PCT Article 33(3)) because the sawing feature is one of several well known, conventional measures for a person skilled in the art, who may select it, according to the circumstances, to solve the problem of interest, without thereby being inventive.

- 3.3 The feature in claim 2 is only one of many possible regions which a person skilled in the art might select, according to the circumstances, to solve the problem of interest, without thereby being inventive.

Therefore the subject matter of claims 2 and 7 is not considered inventive (PCT Article 33(3)).

4. Claims 1 to 13 meet the PCT industrial applicability requirements (PCT Article 33(4)).